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MM92/0411

EXAMINER

CAO.P

ART UNIT

PAPER NUMBER

2814

DATE MAILED:

04/11/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action SummaryApplication No.
09/276,273Applicant(s)
Lowrey et al.Examiner
Phat X. CaoGroup Art Unit
2814☒ Responsive to communication(s) filed on Feb 1, 2001☐ This action is **FINAL**.☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims☒ Claim(s) 1-43 is/are pending in the application.Of the above, claim(s) 40-43 is/are withdrawn from consideration.☐ Claim(s) _____ is/are allowed.☒ Claim(s) 1-39 is/are rejected.☐ Claim(s) _____ is/are objected to.☐ Claims _____ are subject to restriction or election requirement.**Application Papers**☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.☐ The drawing(s) filed on _____ is/are objected to by the Examiner.☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.☐ The specification is objected to by the Examiner.☐ The oath or declaration is objected to by the Examiner.**Priority under 35 U.S.C. § 119**☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been☐ received.☐ received in Application No. (Series Code/Serial Number) _____.☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).**Attachment(s)**☒ Notice of References Cited, PTO-892☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 8☐ Interview Summary, PTO-413☐ Notice of Draftsperson's Patent Drawing Review, PTO-948☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Election/Restriction

1. Applicant's election without traverse of claims 1-39 in Paper No. 7 is acknowledged.

Claim Rejections - 35 USC § 112

2. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 14, lines 1-2, a phrase "the resistivity of said first sidewall layer is less than the resistivity of said first sidewall layer" is unclear.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

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4. Claims 1-31 and 35-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Ovshinsky (US. 5,687,112).

Ovshinsky discloses in Fig. 2 an electrically programmable single-cell memory element comprising: a volume of phase change memory material 36 including chalcogen of Te or Se and made of TeGeSb (column 9, lines 6-14); and a first contact (14,34) and a second contact 42 for supplying an electrical signal to the memory material 36, the first contact (14,34) comprising a conductive side wall spacer 34 being formed on a side wall surface of the insulating layer 18 and on a side wall surface of conductive layer 14, and adjacent to the memory material 36, wherein the conductive sidewall spacer 34 has an edge adjacent to the memory material 36 and comprises a first sidewall layer deposited onto the sidewall surface, and a second sidewall layer deposited onto the first sidewall layer (column 15, lines 35-45), wherein the first sidewall layer is adjacent to the memory material and made of TiW (column 15, lines 39-40) which has less resistivity than the second sidewall layer made of carbon (column 15, lines 1-2) and being remote to the memory material 36. Ovshinsky further discloses in column 14, lines 35-40 that the conductive sidewall spacer 34 can be formed as planar, vertically disposed or horizontally disposed by having a conical, pyramidal, elongated or wedge-shaped.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claims 1-14, 17-18, 20-22, 24-26, 28-37 and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Ovshinsky et al (US. 5,414,271).

With respect to claims 1-14, 17-18, 20-22, 24-25, 29-31, 35-37 and 39, Ovshinsky et al disclose in Fig. 1 an electrically programmable, single-cell memory element, comprising: a volume of phase-change memory material 36 including chalcogen of Te or Se and made of TeGeSb (column 11, lines 28-35); and a first contact and a second contact for supplying an electrical signal to the memory material 36, the first contact comprising a conductive sidewall spacer (32,34) being formed on a sidewall surface of the insulating layer 20 and adjacent to the memory material 36, wherein the conductive sidewall spacer (32,34) has an edge adjacent to the memory material 36 and comprises a first sidewall layer 32 deposited onto the sidewall surface and a second sidewall layer 34 deposited onto the first sidewall layer 32, wherein the first sidewall layer 32 is remote to the memory material 36 and made of molybdenum (column 16, lines 31-34) which has less resistivity than the second sidewall layer 34 made of carbon (column 16, lines 34-35) and being adjacent to the memory material 36.


With respect to claims 26, 28, 32, 33 and 34, Ovshinsky et al further discloses in Fig. 1 that the first contact layer (32,34) is substantially vertically and horizontally disposed, it has cup-like surface having an open end adjacent the memory material 36, and the area of contact between the first contact layer and the memory material is annular which encircles a cross-sectional slice of the memory material.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phat X. Cao whose telephone number is (703) 308-4917. The Examiner can normally be reached on Monday through Thursday. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Olik Chaudhuri, can be reached on (703) 306-2794.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956. Group 2800 fax number is (703) 308-7722 or (703) 308-7724.

PC
April 6, 2001


Cao, Phat X.
Patent Examiner
Technology Center 2800